

# **TANK GT24**

## **B5397**



## **Service Engineer's Manual**



# PREFACE

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Version 1.0

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**CAUTION:** Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

## About this Manual

This manual provides you with instructions on installing your TANK GT24, and consists of the following sections:

- Chapter 1:** Provides an Introduction to the Transport GT24 B5397 barebones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.
- Chapter 2:** Covers procedures on installing the CPU, memory modules, an optional PCI-E card, and hard drives.
- Chapter 3:** Covers removal and replacement procedures for pre-installed components.
- Appendix:** Describes the differences between mainboard BIOS and system BIOS. The cable connection tables are also provided for reference of system setup.

## Conventions

The following conventions are used in the manual:

**Note:** Calls attention to important information.



**Warning:** Provides information to prevent harm to user or damage to equipment.

## SAFETY INFORMATION

Before installing and using the TANK GT24, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the Power Company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

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# Chapter 1: Overview

## 1.1 About the TYAN GT24 B5397

Congratulations on your purchase of the TYAN GT24 B5397, a highly-optimized rack-mountable barebone system. The TYAN GT24 B5397 offers the latest in dual processor server systems, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, the TYAN GT24 B5397 based server system are capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and a lightning fast PCI-X bus implementation. The TYAN GT24 B5397 not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

The TYAN GT24 B5397 uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the TYAN GT24 B5397 the power and flexibility to meet the needs of nearly any server application.

## 1.2 Product Models

<b>Model</b>	GT24-B5397
<b>HDD Bays</b>	(4) 3.5" HDD bays, (1) slim line ODD bay
<b>HDD Supported</b>	SATA Controller, SAS Controller--LSI®
<b>HDD Backplane</b>	One (1) 4-port SAS backplane, supporting up to 4 SAS HDDs or SATA HDDs
<b>Motherboard</b>	TYAN S5397 SSI / Extended ATX (12" x 13")

### GT24-B5397



## 1.3 Features

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### Enclosure

- Industry 19" rack-mountable 1U chassis
- Storage bay
  - (1) slim CD-ROM bay
  - (4) 3.5" HDD bays
- Dimension:  
D 25.4 x W 17.2 x H 1.72 inch  
(645x436x43.6mm)

---

### Processors

- Dual LGA771 sockets
- Supports up to two Dual-Core Intel® Xeon® 5100/5200 Series processors, Quad-Core Intel® Xeon® 5300/5400 Series processors

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### Chipset

- Intel® "Seaburg MCH +6321ESB chipset
- Supports for 1066/1333/1600 MT/s system bus
- Winbond 83627HF Super I/O chip

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### Memory

- Sixteen (16) 240-pin DDR2 FBDIMM sockets on board
- Maximum of 128GB DDR2-533/667/800

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### Expansion Slots

- One (1) PCI Express x16 slots(M2083 Riser card)

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### Back I/O Ports

- One Keyboard & One PS/2 Mouse ports
- One USB 2.0 ports
- One 15-pin VGA port
- One 9-pin serial port
- Two RJ-45x2 LAN ports + One RJ-45

---

### Front Panel Features

- I/O
  - (2) USB 2.0 ports
- LED indicators
  - Power LED
  - (2) LAN LEDs

- HDD active LED
- Warning LED
- ID LED
- Switches
  - Power switch
  - NMI switch
  - Reset switch
  - ID switch

---

### Storage

- SATA Controller
  - (4) SATA2 ports from Intel ESB2
  - Integrated RAID 0, 1, 5 and 10 support
- SAS Controller
  - LSI® 1068E SAS controller with PCI-E x 8 interface
  - (2) Mini SAS (4 in 1)connectors
  - RAID 0, 1 and 1E support

---

### Networking

- One Intel® "Gilgal" (82563EB) PHY
- Direct link to ESB2
- Two Gigabit LAN ports
- Two front panel LED pin headers

---

### Video

- XGI Z9s
- PCI Interface
- 32MB DDR2 memory

---

### Motherboard

- TYAN S5397
- SSI / Extended ATX (12" x 13")

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### BIOS

- Phoenix BIOS® on 8Mbit Flash ROM
- Support APM 1.2, ACPI 1.0b
- Serial Console Redirect
- PXE via Ethernet, USB device boot-PnP, DMI 2.0, WfM 2.0 Power Management
- User-configurable H/W monitoring
- Auto-configuration of hard disk types
- Multiple boot options
- 48-bit LBA support

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**Server Management**

- Automatic fan speed control
- Chassis intrusion alert
- Support Tyan Server Management (TSM)
- Option TYAN SMDC M3295/6, IPMI v2.0 compliant remote server management kit

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**Power Supply**

- EPS 12V, 1U, 600W high efficiency power supply (80+) with PFC
- ERPU 1U, 650W high efficiency redundant power supply with PFC (B5397G24W4HR)

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**Regulatory**

- FCC Class A (Declaration of Conformity)
- CE (Declaration of Conformity)

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**Environment Temperature**

- Operating temperature (5°C~35°C)
- Non-operating temperature (-40°C~70°C)

## 1.4 Unpacking

### 1.4.1 Accessories

If any items are missing or appear damaged, contact your retailer or visit TYAN's Web site for service:  
<http://www.tyan.com>.

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.



1 x Tyan driver CD



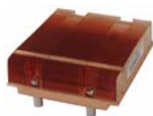
Power Cords  
Left to right: Europe, US



Barebone Manual



Mainboard Manual



CPU Heatsink



HDD Screws



Tyan Logo

## **Rail Kit**



**Mounting Bracket x 4**



**Mounting Ears & Screws**



**Screws Kit**













**Sliding Brackets**  
**Front L-Bracket x 2**  
**Rear L-Bracket x 2**



**Sliding Rails x 2**

## 1.4.2 FRU Parts

Item	Model Number	Quantity		Description
<b>GT24-B5397 Standard Parts</b>				
Motherboard	S5397AWG2NR	1		S5397AWG2NR Dual Xeon Motherboard ( B5397G24W4H / B5397G24W4HR )
	S5397AG2NR	1		S5397AG2NR Dual XeonMotherboard ( B5397G24V4H )
Chassis Unit	CCHA-0320	1		GT241UChassis (B5397G24V4H / B5397G24W4H )
	CCHA-0330	1		GT241UChassis ( B5397G24W4HR)
Chassis Top Cover	CCCV-0050	1		Top Cover for GT24 Chassis (B5397G24V4H, B5397G24W4H SKU)
	CCCV-0170	1		Top Cover for GT24 Chassis (B5397G24W4HR)
HDD Tray	CHDT-0051	4		Removable 3.5"HDD Tray
Power Supply	CPSU-0260	1		600W 1U (80 Plus) Single Power Supply ( B5387G24V4H / B5397G24W4H )
	CPSU-0330	2		650W 1U (80 Plus) Redundant Power Module ( B5397G24W4HR)
	M1032	1		650W 1U Power Distribution Board ( B5397G24W4HR)

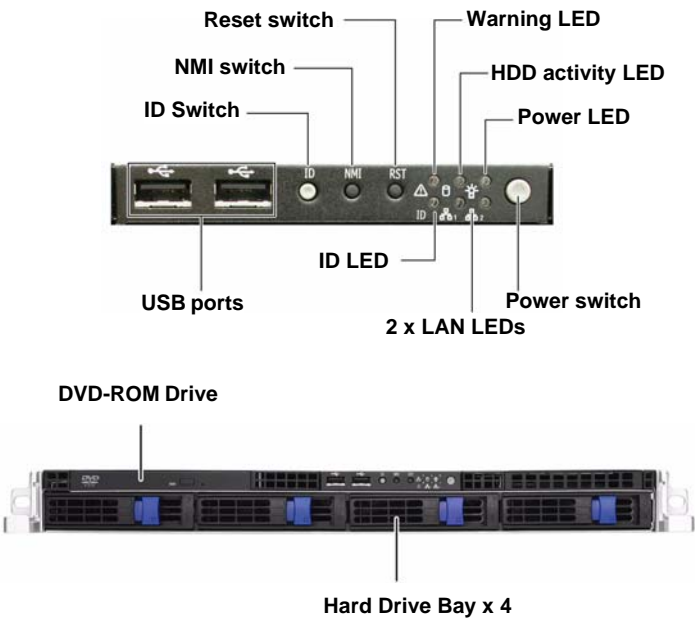
Item	Model Number	Quantity		Description
Fan	CFAN-0066	4		40x40x56mm Fan, 12V, 15500rpm, 3-pin
	CFAN-0171	1		40x40x28mm Fan, 12V, 15000rpm, 3-pin
Heat Sink & Cooler	CHSK-0170	1		LGA771 CPU Heat Sink ( B5397G24V4H / B5397G24W4H )
	CHSK-0173	1		LGA771 CPU Heat Sink ( B5397G24W4HR)
Peripheral Drives & Parts	CDVD-0060	1		Slim Type DVD-ROM, Silver Color
	CCBL-0326	1		SATA DVD-ROM Power Cable, L =110mm
	CCBL-0422	1		DVD SATA cable
PCBA	M1208-3-SN	1		SATA/SAS 4-Port HDD Backplane
	M1012-RS	1		Fan Adapter Board
	M1003-ID-RS	1		Front Control Board Module
Riser Card	M2083-RS	1		PCI-E Riser Card
Mounting Ear Kit	CEAR-0050	1		Mounting Ear Kit
Sliding Rail Kit	CRAL-0031	1		Sliding Rail Kit

Item	Model Number	Quantity		Description
Cable Set	CCBL-067J	1		Mini-SAS cable, L=580mm ( B5397G24W4H, B5397G24W4R )
	CCBL-0679	1		SAS CABLE ( B5397G24V4H )
	CCBL-0720	1		Front Panel Control BD cable, L=320mm
	CCBL-0400	1		TYFP I cable, L=220mm
	CCBL-0417	1		TYFP II cable, L=250mm
	CCBL-0653	1		Fan Cable, L=300mm
	CCBL-0355	1		USB Internal Cable, L=580mm
	CCBL-0355	1		A/C Power Cord, US Type, L=2440mm
	CCBL-0310	1		A/C Power Cord, EU Type, L=1800mm
OPMA (Optional)	M3295-2	1		OPMA card
	M3296	1		OPMA card

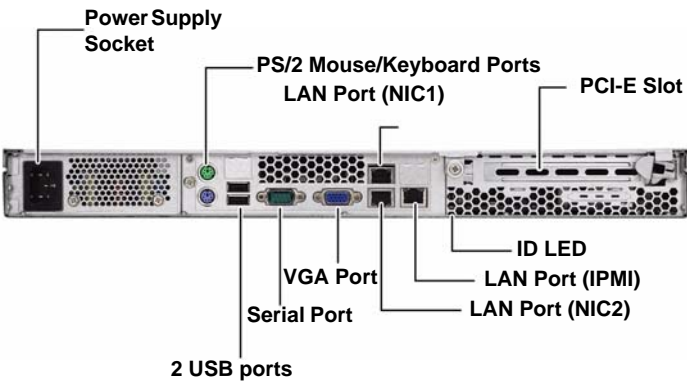
# 1.5 About the Product

This section contains the hardware diagrams and a block diagram of the GT24 system.

## 1.5.1 System Front View



## 1.5.2 System Rear View



### 1.5.3 LED Definition

#### Front Panel

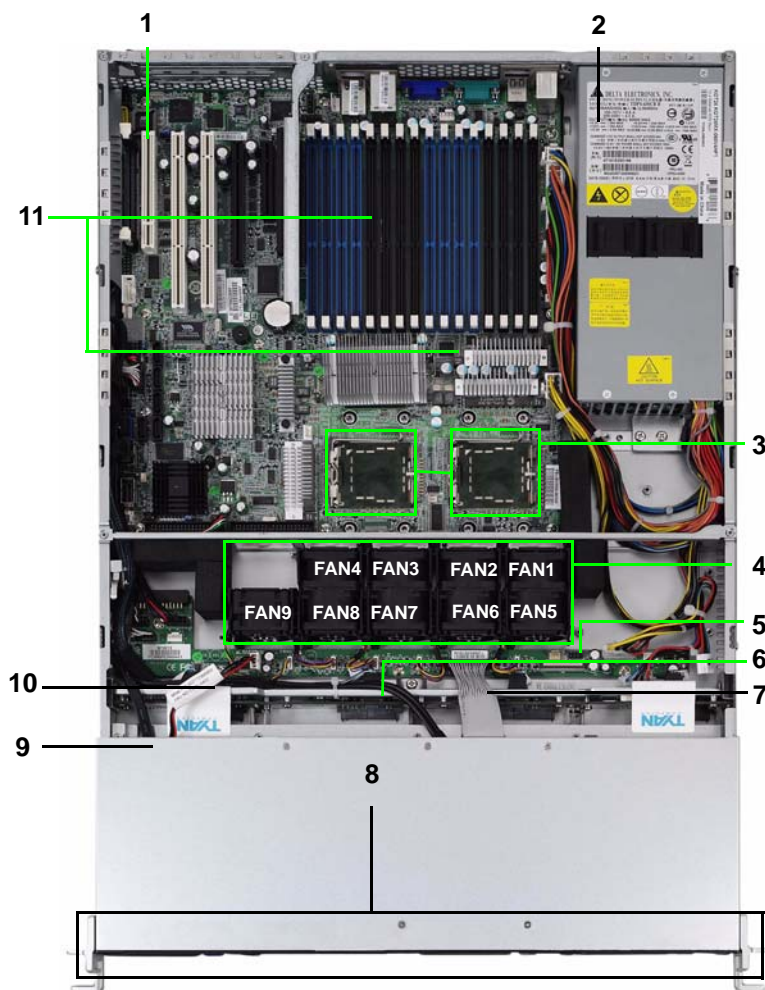
LED	Color	State	Description
Power	Green	ON	Power ON
	OFF	OFF	Power OFF
HDD Activity	Amber	Random Blinking	HDD access activity
	OFF	OFF	No disk activity
LAN1/LAN2 Activity	Green	ON	LAN linked
	Green	Blinking	LAN accessing
	OFF	OFF	No LAN linked
Warning	Red	ON	Fan fails / Abnormal shut down
	OFF	OFF	Normal
ID LED	Blue	ON	System is identified
	OFF	OFF	System is not identified
Hot Swappable HDD Tray Power LED	Green	ON	Power connected
	OFF	OFF	Power disconnected
Hot Swappable SATA HDD Access LED	Amber	Random Blinking	HDD access activity
	OFF	OFF	No disk activity
Hot Swappable SAS HDD Access LED	Amber	ON	HDD ready
	Amber	Random Blinking	HDD access activity
	OFF	OFF	HDD not ready

## Rear I/O LED

LED	Color	State	Description
LAN1/LAN2 Linkage/ Activity (Left Side)	Green Green OFF	ON Blinking OFF	10Mb/100Mb/1000Mb linked 10Mb/100Mb/1000Mb activity No LAN linked and activity
LAN1/LAN2 Linkage/ Activity (Right Side)	Yellow	Blinking Blinking Blinking OFF	10Mb mode 100Mb mode 1000Mb mode NO LAN linked and activity
<b>Note: In 10 Mbps, the Right LED blinks yellow once in repeat and continuous action.  In 100 Mbps, the Right LED blinks yellow twice in repeat and continuous action.  So does the condition in 1000 Mbps.</b>			
ID LED	Blue  OFF	ON  OFF	System is identified  System is not identified

## 1.5.4 System Internal View

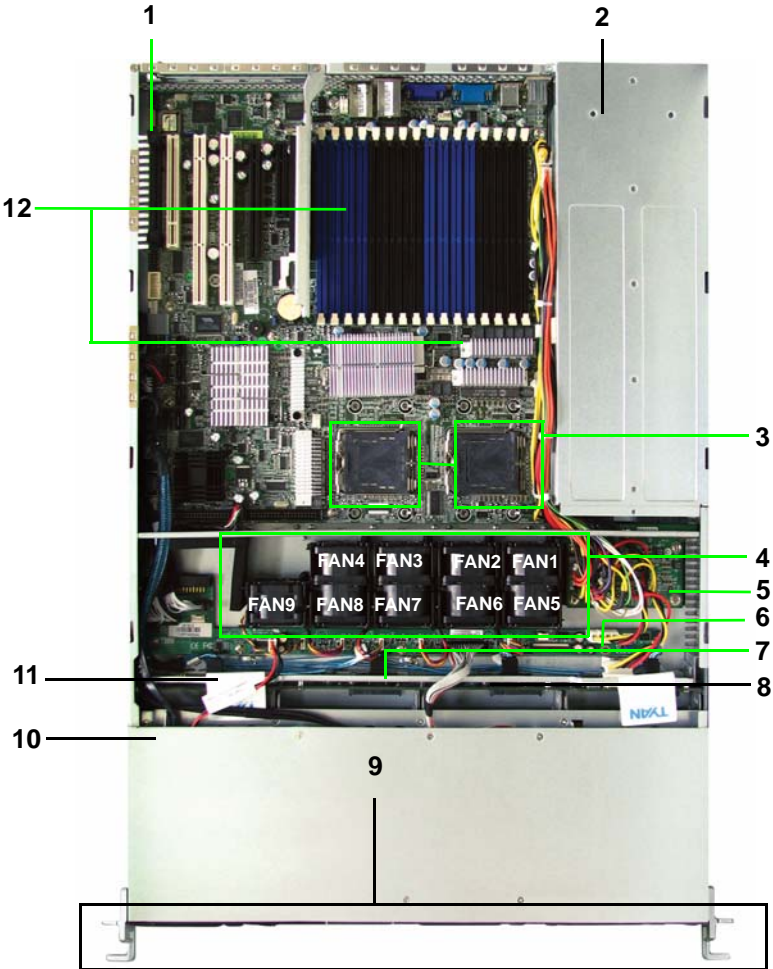
### B5397G24W4H/B5397G24VHH



1. PCI-Slot (with riser card M2083)
2. EPS 12V Power Supply
3. CPU Sockets
4. System Fans
5. Adapter Board
6. SAS/SATA Backplane

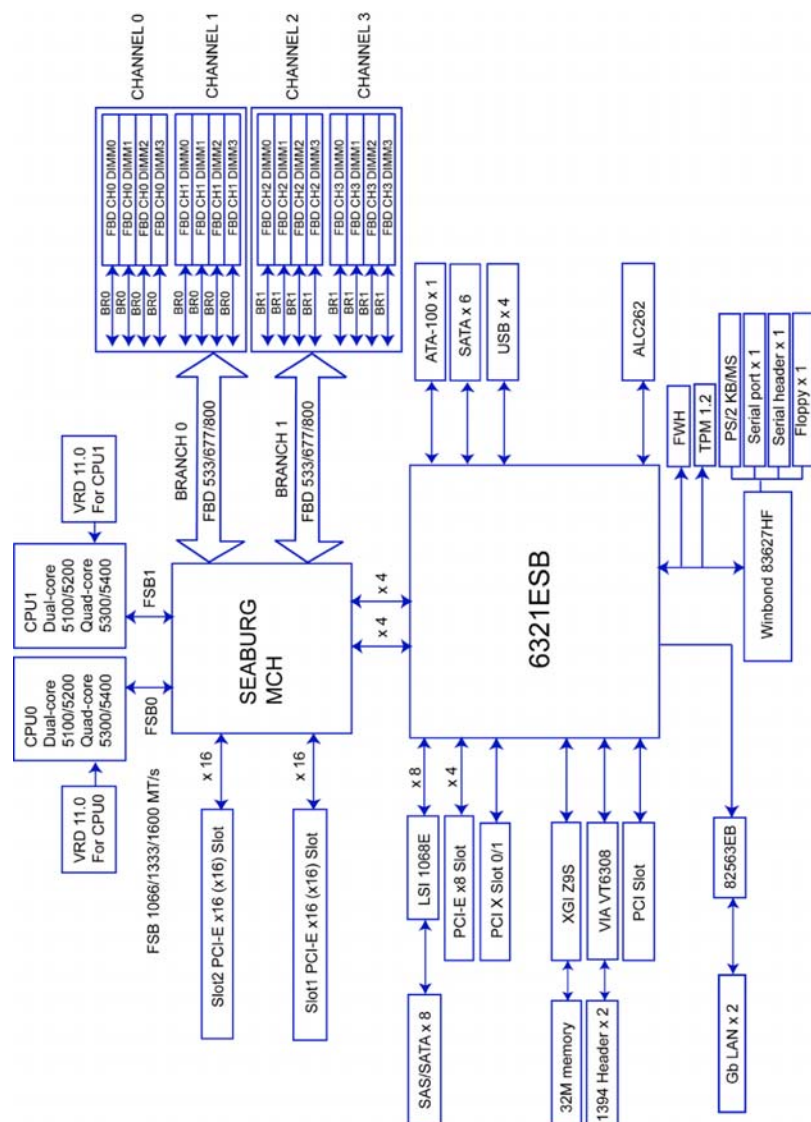
7. LED Control Board Cable
8. Four SAS/SATA HDDs
9. Slim DVD-ROM
10. DVD-ROM Cable
11. Memory Slots

**B5397G24W4HR**



- |                                     |                            |
|-------------------------------------|----------------------------|
| 1. PCI-Slot (with riser card M2083) | 7. SAS/SATA Backplane      |
| 2. ERPU 1U 12V Power Supply         | 8. LED Control Board Cable |
| 3. CPU Sockets                      | 9. Four SAS/SATA HDDs      |
| 4. System Fans                      | 10. Slim DVD-ROM           |
| 5. Power Distriubution Board        | 11. DVD-ROM Cable          |
| 6. Adapter Board                    | 12. Memory Slots           |

### 1.5.5 GT24-B5397 System Block Diagram





J7/J12/J19/J21/J36/J40	4-pin FAN Connector
J3	Onboard HD Audio Header
J6	CD_IN Audio Header
J8	IPMB Header
J20	COM2 Header
J22/J23	1394 Header
J28	Front Panel Header
J33	TYAN Fan speed Header for Barebone
J37	TYAN LAN LED Header for Barebone
J38	TYAN LCM Header for Barebone
J41	USB Front Panel Header
P1	Audio Jack Header
J2	Aux. Power Header for TYAN Riser Card (M2061)
J18	PSMI Connector (Reserved for Barebone)

J64 Front Panel Header

HDDLED+	1	2	PWR LED+
HDDLED-	3	4	PWR LED-
Reset Switch	5	6	Power Switch
Reset Switch	7	8	GND
GND	9	10	Warning LED+
NMI	11	12	Warning LED-
5Vsb	13	14	Key
SMBus Data	15	16	GND
SMBus Clock	17	18	Intruder

### Power Supply

The B5397 is EPS12V compatible.

- ☐ 4 power connectors: EPS12V  
(24-pin + 8-pin + 4-pin + 4-pin)

**Check User's Manual for details**



## Chapter 2: Setting Up

### 2.0.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI-E card are also given.

Take note of the precautions mentioned in this section when installing your system.

### 2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

### 2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

## 2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the B5397 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

### Notes:

- All connectors are designed to only fit one way.
- Always use the correct screw size as indicated in the procedures.

## 2.1 Rack Mounting

After installing the necessary components, the TANK GT24 can be mounted in a rack using the supplied rack mounting kit.

### Rack mounting kit

Sliding Rails x 2

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears (including screws) x 2

Screws Kit x 1

Mounting Brackets x 4

### 2.1.1 Installing the Server in a Rack

Follow these instructions to mount the TANK GT24 into an industry standard 19" rack.

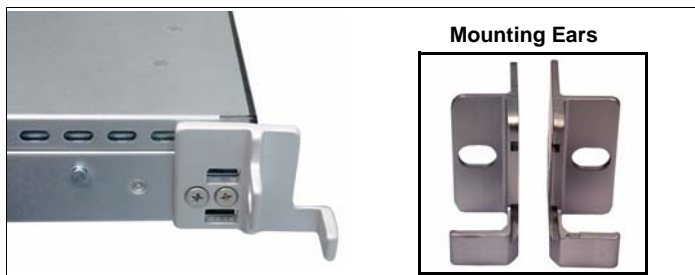
**NOTE:** Before mounting the Tank GT24 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

### Screws List

No.	Screw	Size	Quantity
A		M4-4L	18
B		M5-8L	10
C		M5-15L	4

### **Installing the Inner Rails to Chassis**

1. Screw the mounting ear to each side of TANK GT24 as shown using 2 screws from the supplied screws kit.



2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 1 M4-4L(A) screw for each side.



### **Installing Outer Rails to the Rack**

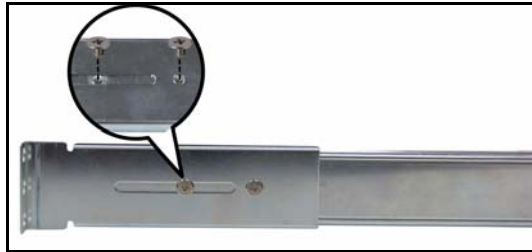
3. Measure the distance between inner side of the front and rear mounting brackets in the rack.



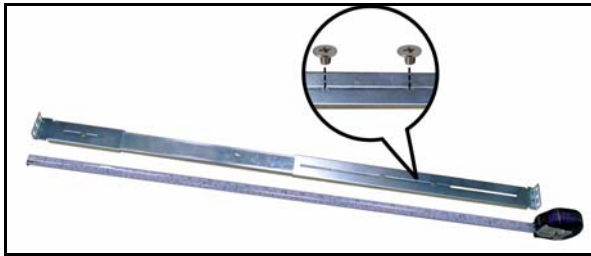
4. Locate the front and rear brackets.



5. Secure the front bracket to outer rail with 2 M4-4L(A) screws.



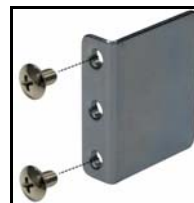
6. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(A) screws.



7. Secure the outer rail to the rack using 2 brackets and 4 M5-8L(B) screws for each side. Secure the mounting brackets from inside, not outside, of the rack.



**Mounting Bracket**



## Rackmounting the Server

8. Draw out the middle rail to the latch position.



9. Lift the chassis and then insert the inner slide rails into the middle rails.

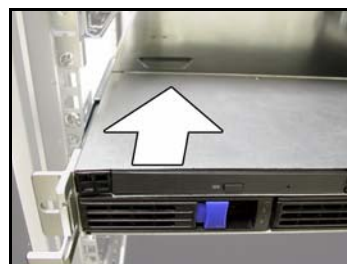


10. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

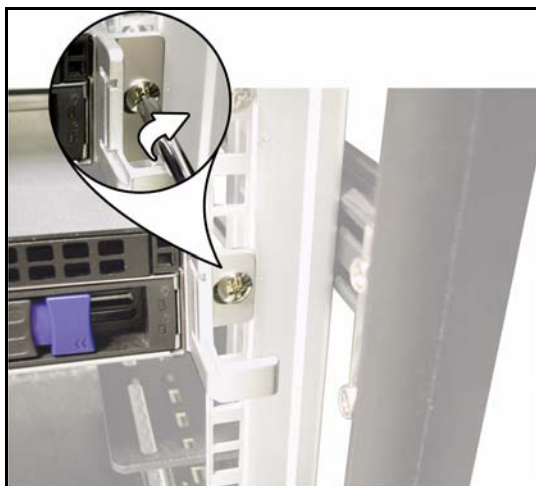
A



B



11. Secure the mounting ears of chassis to the rack with 2 M5-15L(C) screws.



**NOTE:** To avoid injury, it is strongly recommended that two people lift the TANK GT24 into the place while a third person screws it to the rack.

## 2.2 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules and PCI-E card.

### 2.2.1 Removing the Chassis Cover

Follow these instructions to remove the Tank GT24 chassis cover.

1. Release the screw on the back side. Then slide the chassis cover in the direction of the arrow.



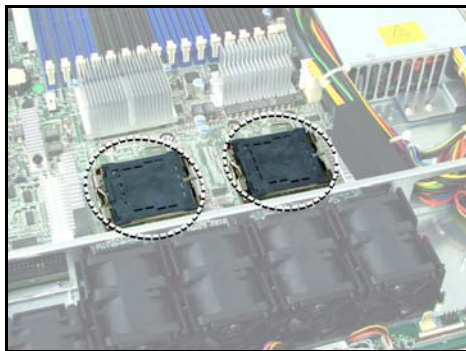
2. Lift the cover off.



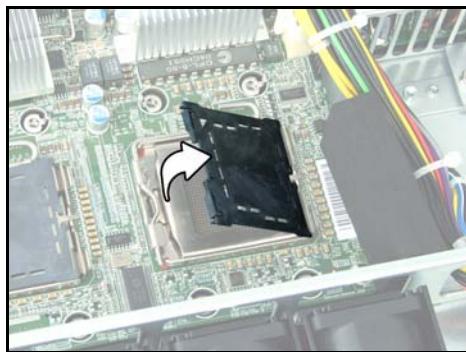
## 2.2.2 Installing the CPU and Heatsink

Follow these instructions to install the CPU and CPU heat-sink.

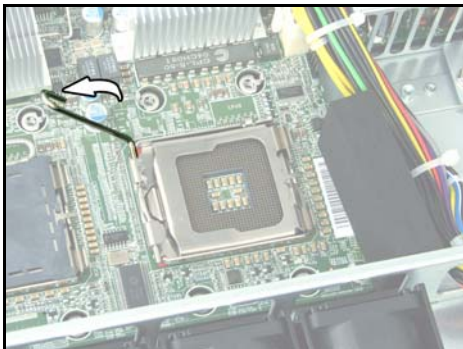
1. Locate the CPU sockets.



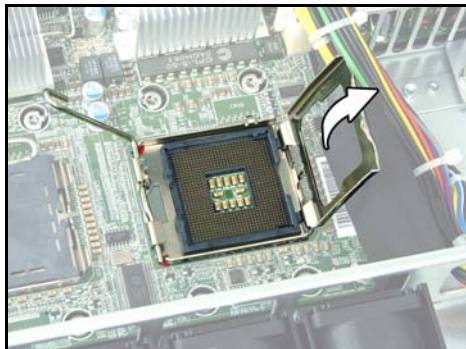
2. Take off the CPU protection cap.



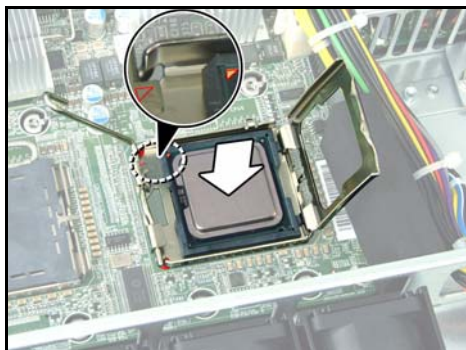
3. Pull the CPU lever up to unlock the CPU socket.



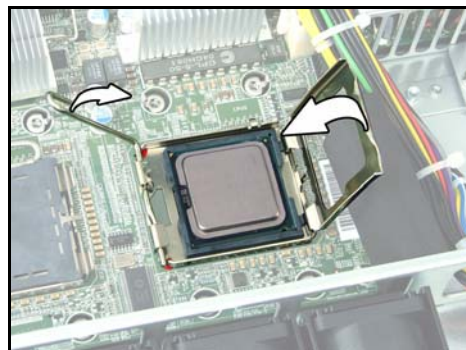
4. Open the socket in the direction as shown.



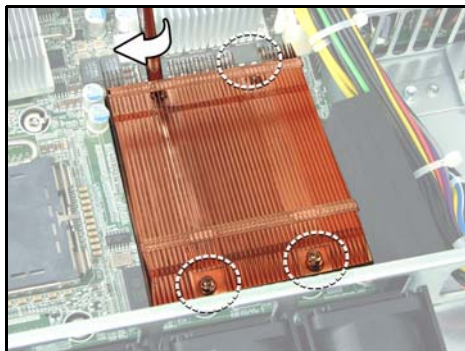
5. Place the CPU in the CPU socket, ensuring that pin 1 is located as shown below.



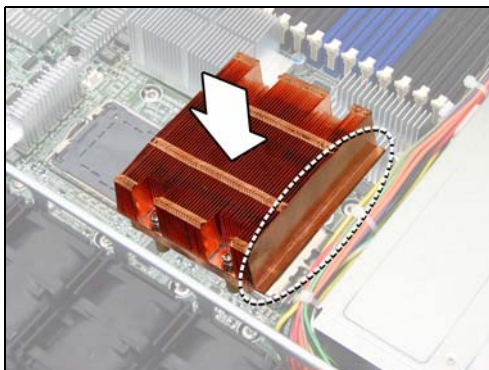
6. Close the socket and press the CPU socket lever down to secure the CPU.



7. Place the heatsink on top of the CPU and screw into place as shown.



**B5397G24W4HR**

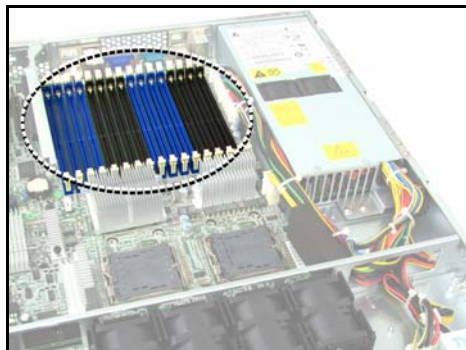


**Notice: Place the heatsink for the Power Cables on top of the CPU and screw into place as shown.**

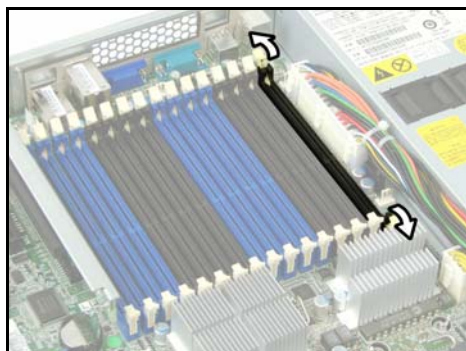
### 2.2.3 Installing the Memory

Follow these instructions to install the memory modules on the motherboard.

1. Locate the memory slots on the motherboard.

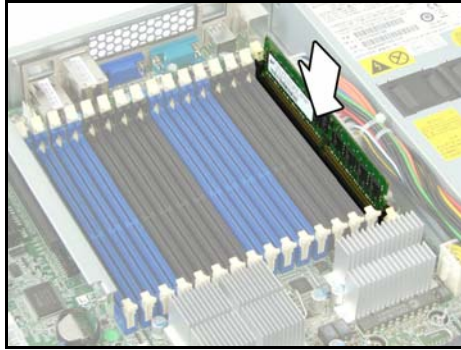


2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. The module has indentations that align with notches in the slots.

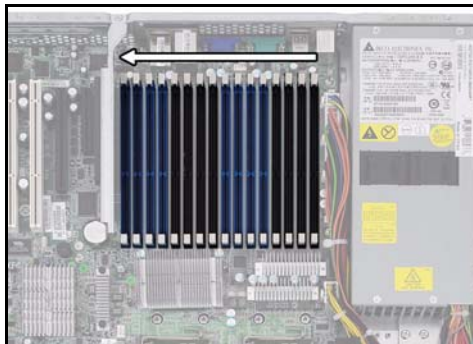
4. Insert the memory module into the slot as shown.



When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.

**Attention When Installing the Memory!**

Always install memory DIMMs in pairs starting from CPU1\_DIMM0 and CPU1\_DIMM1 and CPU2\_DIMM0 and CPU2\_DIMM1.



Key points to note before installing memory:

- Only **DDR2 800/667/533 FB-DIMM** memory modules are supported
- All installed memory will automatically be detected and no jumpers or settings need changing.
- The Tempest i5400PW S5397 supports up to 128G of memory.
- DDR2 533 FB-DIMM memory modules will operate at 640MHz frequency with FSB-1600 processors.
- All memory must be of the **same type and density**.

Please refer to the table below for supported CPU FSB and DIMM Frequency combinations.

CPU FSB DIMM Moudule	1066FSB	1333FSB	1600FSB
DDR2-533	533MHz	533MHz	Not Supported
DDR2-667	667MHz	667MHz	640MHz
DDR2-800	667MHz	667MHz	800MHz

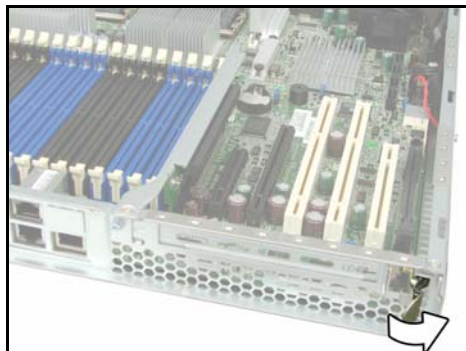
The following chart outlines the suggested rules for populating memory.

Total DIMM Quantity	BRANCH0								BRANCH1							
	CHANNEL0				CHANNEL1				CHANNEL0				CHANNEL1			
	DIMM 1	DIMM 2	DIMM 3	DIMM 4	DIMM 5	DIMM 6	DIMM 7	DIMM 8	DIMM 9	DIMM 10	DIMM 11	DIMM 12	DIMM 13	DIMM 14	DIMM 15	DIMM 16
1	x															
2	x								x							
4	x				x				x				x			
8	x	x			x	x			x	x			x	x		
12	x	x	x		x	x	x		x	x	x		x	x	x	
16	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

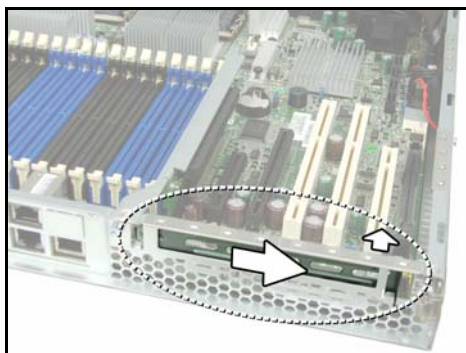
## 2.2.4 Installing a PCI-E Card

There is one PCI-E slot on the rear panel of GT24. Refer to the procedures below for PCI-E installation.

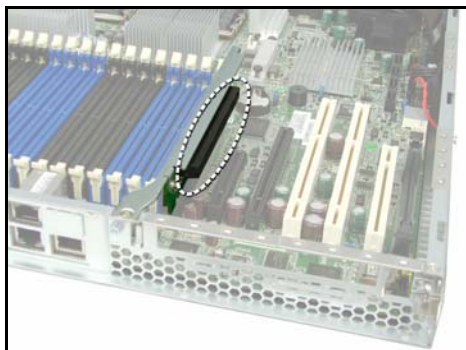
1. Push the tab of PCI-E slot on the rear panel in the direction as shown to release the bracket.



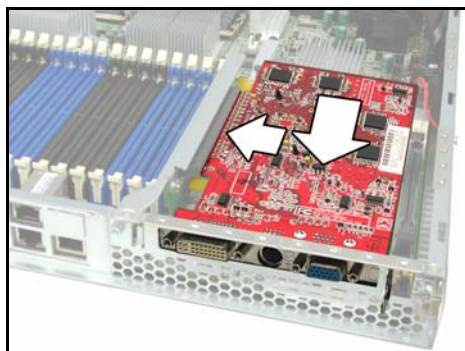
2. Move the bracket to the right as shown.



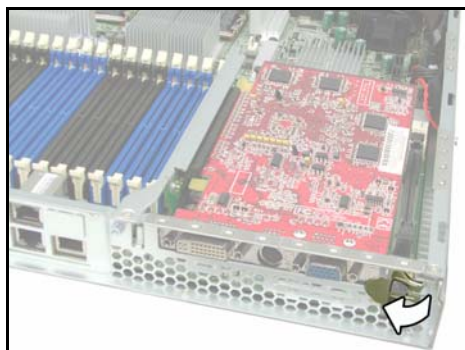
3. Locate the pre-installed PCI-E riser.



4. Insert the PCI-E card as shown.



5. Push the tab of PCI-E slot in the direction as shown to fix PCI-E card.



**Notice:**

1. Full length PCI-E card is not supported if SMD C card is installed first. Only Low-profile card is supported in that case.
2. Please make sure the size of the PCI-E card is within range of the standard size of the PCI-E cards. Larger PCI-E cards may cause obstruction within the system.

## 2.3 Installing the Hard Drives

The TYAN GT24 barebone system supports SAS/SATA hard drives.

Follow these instructions to install a SAS/SATA hard drive for model GT24 B5397.

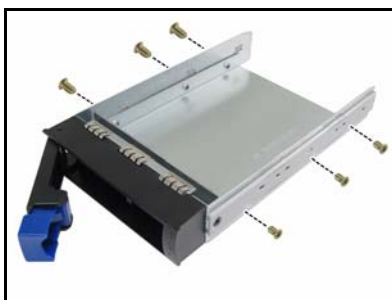
1. Press the locking lever latch in the direction of the arrow (A) and then pull the locking lever open (B).



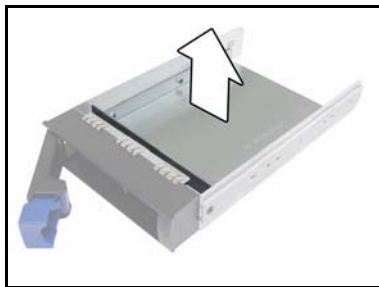
2. Slide the drive tray out.



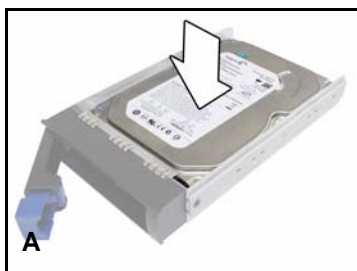
3. Remove the six HDD screws as shown.



4. Remove the drive tray holder.



5. Place a hard drive into the drive bay.



6. Use six screws to secure the HDD.



7. Reinsert the drive tray into the chassis, ensuring that the drive tray is completely inserted into the chassis.



8. Close the locking lever to secure the hard drive tray.



9. Repeat the same procedures to install the hard drive for the other drive tray if necessary.



# Chapter 3: Replacing Pre-Installed Components

## 3.1 Introduction

This chapter explains how to replace pre-installed components including the motherboard, LED control board, DVD-ROM drive, M1012 adapter board, M1208-3-SN SAS/SATA backplane, and power supply.

Take note of the precautions in this section when installing your system.

### 3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

### 3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

### 3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the TANK GT24 or injury to yourself.

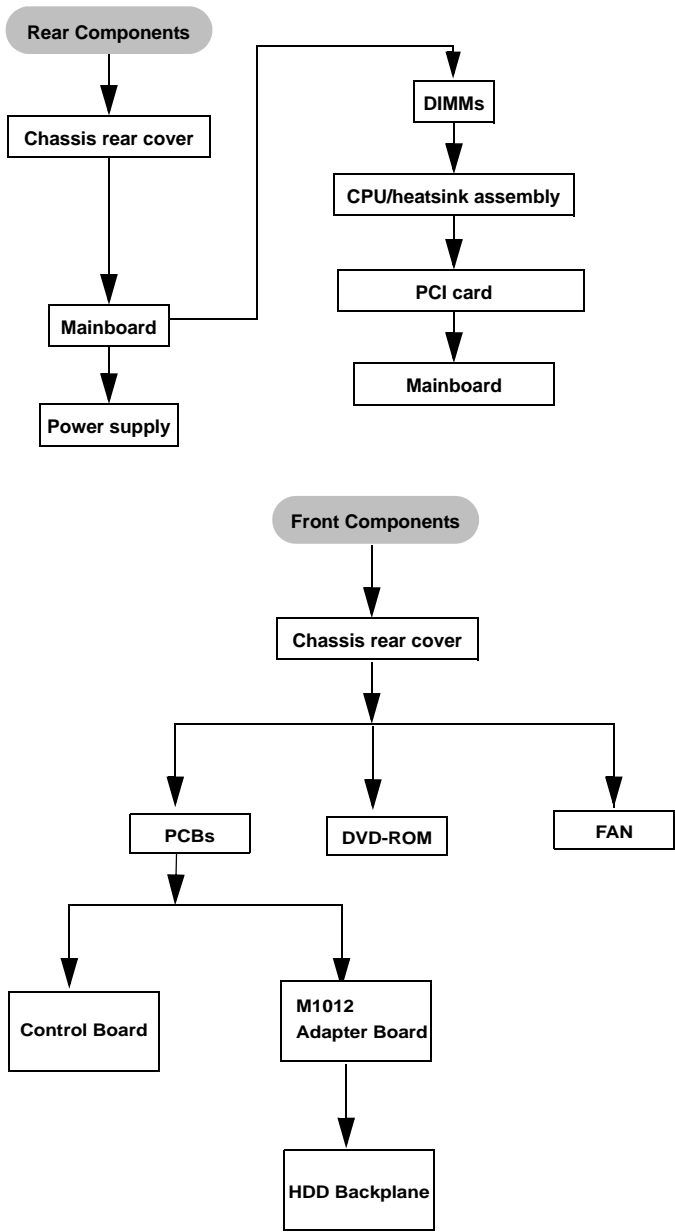
- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

#### **Notes:**

- All connectors are designed to only fit one way.
- Always use the correct screw size as indicated in the procedures.

### 3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.



### 3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the TANK GT24 chassis cover.

1. Release the screw on the back side. Then slide the chassis cover in the direction of the arrow.



2. Lift the cover off.



## 3.4 Replacing Motherboard Components

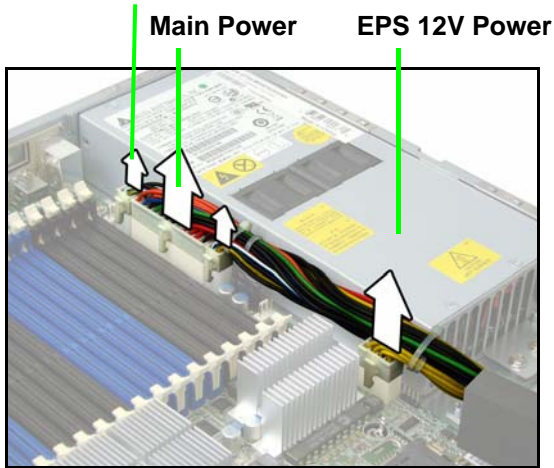
Follow these instructions to replace motherboard components, including the motherboard.

### 3.4.1 Disconnecting All Motherboard Cables

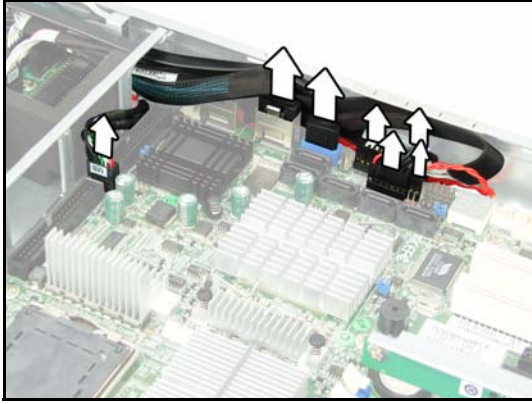
Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cabling.

1. Disconnect ATX power cables

#### EPS 12V Power



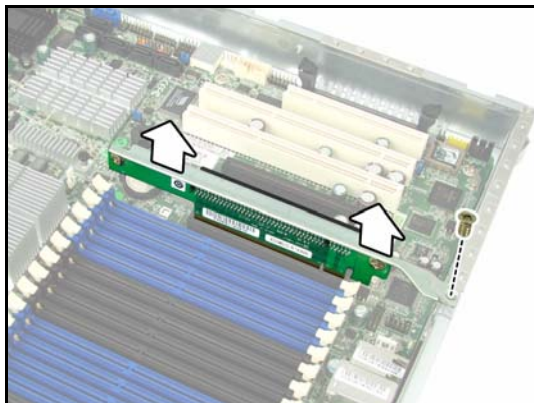
2. Disconnect DVD-ROM drive cable, SAS/SATA hard drive cables, USB, TYFP I, TYFP II, and Fan cable. Refer to the mainboard layout for the locations.



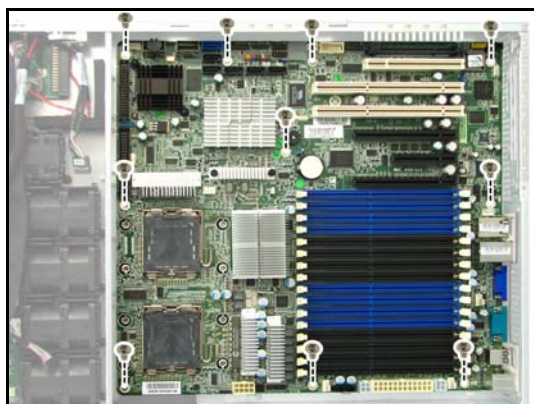
### 3.4.2 Removing the Motherboard

Follow these instructions to remove the motherboard from the chassis when all add-on components have been removed.

1. Remove one screws securing the link-bar to the chassis.



2. Remove ten screws securing the motherboard to the chassis.

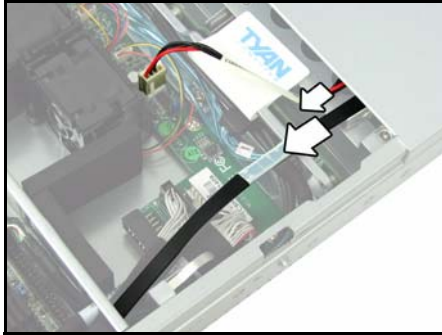


3. Remove the motherboard.

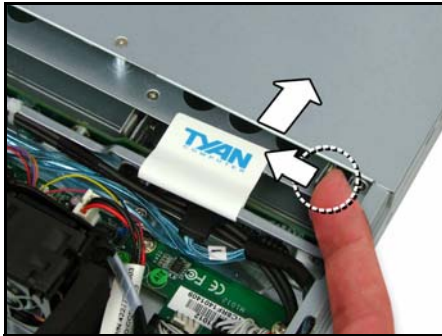
### 3.5 Replacing the Slim DVD-ROM

Follow these instructions to replace the DVD-ROM.

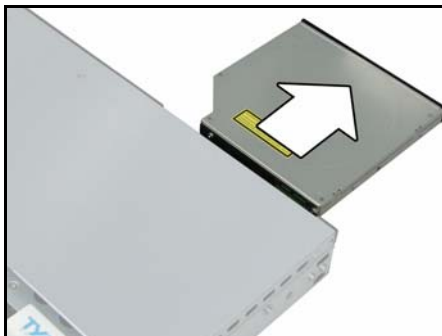
1. Remove power and data cables from the slim DVD-ROM.



2. Press the tab in the directions as shown to release the DVD-ROM drive.



3. The DVD-ROM drive will be freed from the drive bay after pressing the tab.



4. Remove two screws that secure DVD-ROM drive to the bracket.



5. Replace the DVD-ROM drive.



6. Secure DVD-ROM to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables.

## 3.6 Replacing the LED Control Board

Follow these instructions to remove the LED control board.

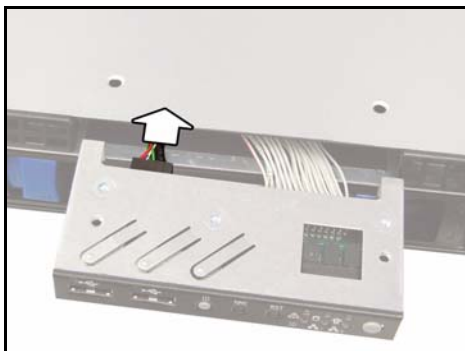
1. Remove the two screws securing the LED control board to the chassis.



2. Lift the LED control board unit free from the chassis.



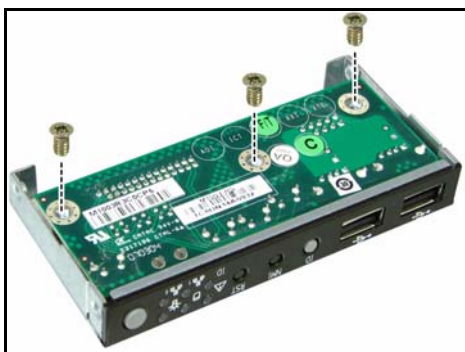
3. Unplug the USB cable from the connector.



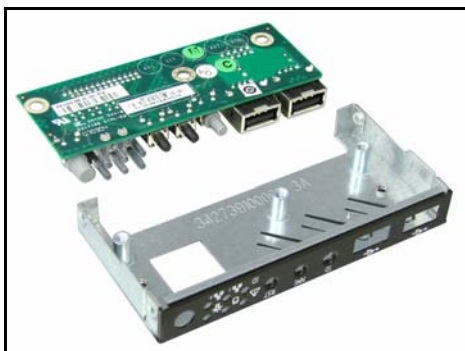
4. Unplug the ribbon cable from the connector.



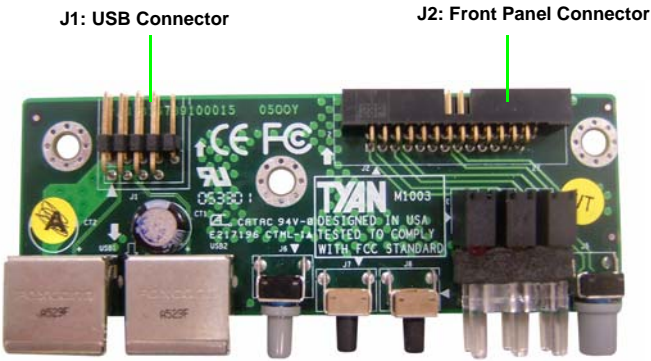
5. Remove the three screws securing the LED control board to the control box.



6. Lift the LED control board free from the chassis. After replacement, insert the unit to the chassis following the above procedures in reverse.



3.6.1 M1003 LED Control Board Features



### 3.6.2 M1003 LED Control Board Connector Pin Definition

J1 USB Connector

1	VCC5	2	VCC5
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	GND	8	GND
9	KEY PIN	10	GND

J2 Front Panel Connector

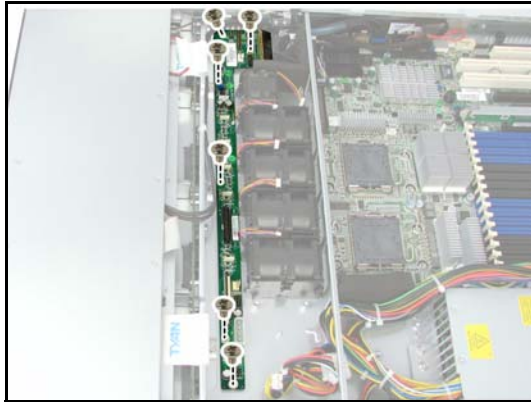
1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMBCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

### 3.7 Replacing the M1012 Adapter Board

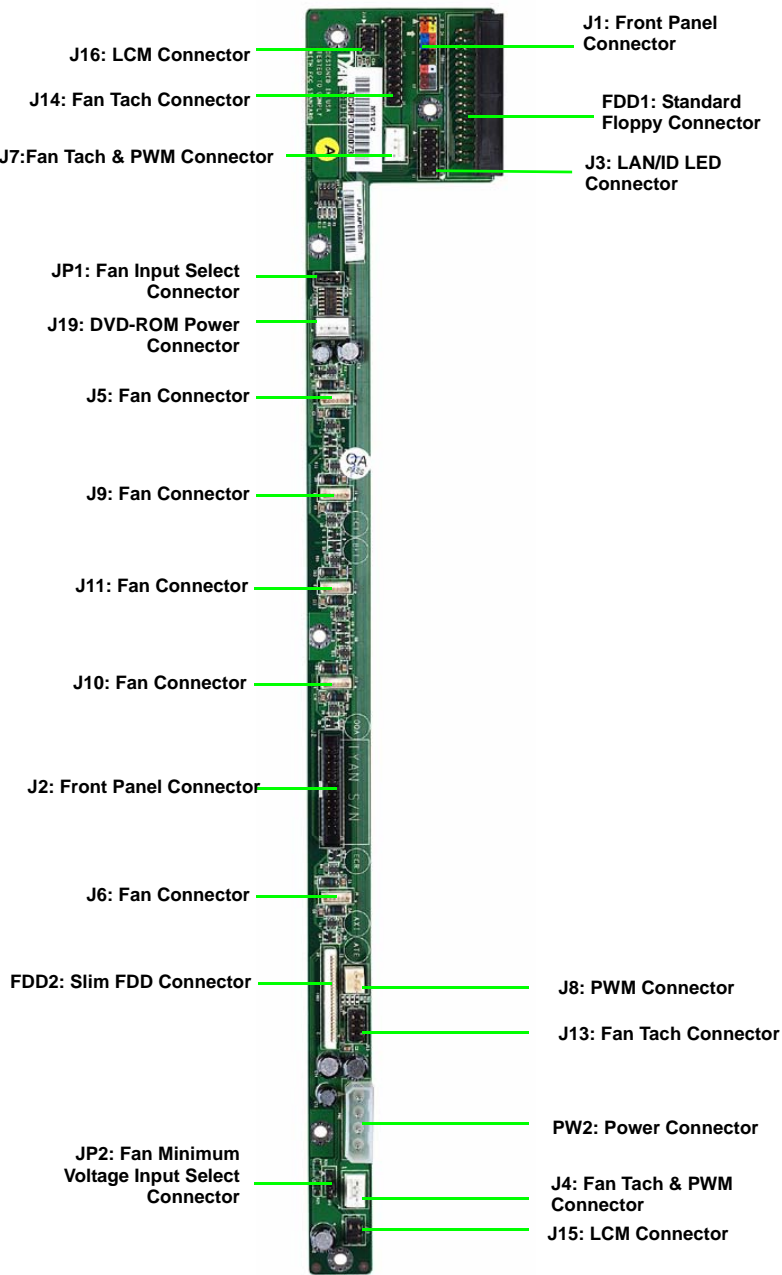
1. Remove all the cables connected to the adapter board, including front panel, TYFPI, TYFP2, FAN, and DVD-ROM power cables. Refer to page12 for the location



2. Remove the six screws to release the adapter board.



3.7.1 M1012 Adapter Board Features



### 3.7.2 M1012 Adapter Board Connector Pin Definition

J1 TYFP Front Panel Connector

1	HDLED+	2	PW_LED+
3	HDLED -	4	PW_LED -
5	RESET-	6	PWR_SW+
7	RESET+	8	PWR_SW -
9	VOLTAGE5	10	WLED+
11	EXT_INT	12	WLED-
13	V5SB	14	KEY PIN
15	ICH_SMBDAT	16	GND
17	ICH_SMBCLK	18	INTRU#

J2 Front Panel Connector

1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMSCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

### J3 LAN/ID LED Connector

1	LAN1_LED+	2	LAN1_LED-
3	LAN2_LED+	4	LAN2_LED-
5	LAN3_LED+	6	LAN3_LED-
7	ID_LED+	8	ID_LED-
9	ID_SW+	10	ID_SW-
11	KEY PIN	12	NC

### FAN Signal Related Connector Pin Definition

**NOTE:** The FAN signal naming is based on HW circuit design only. It might be different from the system fan naming.

#### J4 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN1_TACH
4	PWM1 (Default)

#### J7 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN7_TACH
4	PWM1 (Default)

#### J8 PWM Connector

1	GND
2	PWM2
3	FAN1_TACH

#### J13 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	KEY PIN	8	NC

#### J14 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	GND	8	FAN4_TACH
9	GND	10	FAN5_TACH
11	GND	12	FAN6_TACH
13	GND	14	FAN7_TACH
15	GND	16	FAN8_TACH
17	GND	18	FAN9_TACH
19	GND	20	FAN10_TACH
21	KEY PIN	22	PWM

#### J6 Fan Connector

1	FAN1_12VPWM
2	FAN1_TACH
3	GND
4	GND
5	FAN2_TACH
6	FAN2_12VPWM

#### J10 Fan Connector

1	FAN3_12VPWM
2	FAN3_TACH
3	GND
4	GND
5	FAN4_TACH
6	FAN4_12VPWM

#### J11 Fan Connector

1	FAN5_12VPWM
2	FAN5_TACH
3	GND
4	GND
5	FAN6_TACH
6	FAN6_12VPWM

#### J9 Fan Connector

1	FAN7_12VPWM
2	FAN7_TACH
3	GND
4	GND
5	FAN8_TACH
6	FAN8_12VPWM

### J5 Fan Connector

1	FAN9_12VPWM
2	FAN9_TACH
3	GND
4	GND
5	FAN10_TACH
6	FAN10_12VPWM

### J15 & J16 LCM Connectors

1	LCM_+5V	2	LCM_SIN
3	KEY PIN	4	GND
5	LCM_+5VSB	6	LCM_SOUT

### JP1 Fan Input Select Connector

Pin1 & Pin2 Close	Fan PWM signal from J8
Pin2 & Pin3 Close	Fan PWM signal from J4, J7 & J14 (Default)

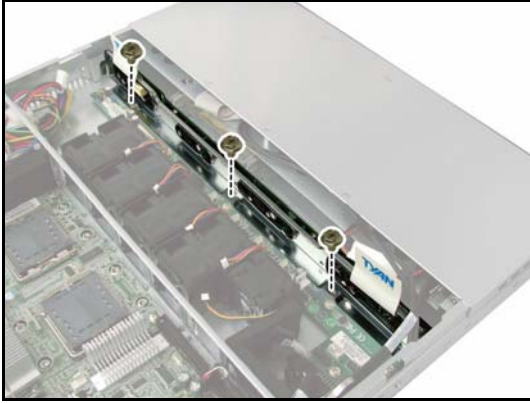
### JP2 Fan Input Select Connector

Pin1 & Pin2 Close	0V
Pin2 & Pin3 Close	+5V (Default)

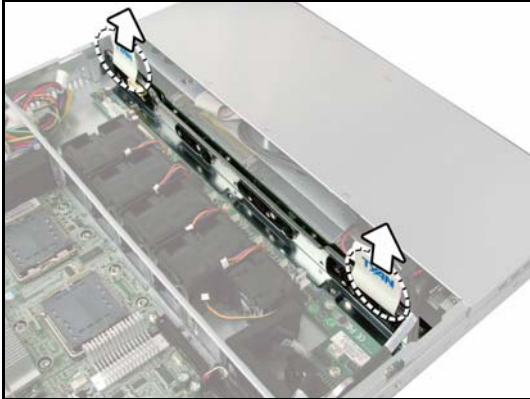
### 3.8 Replacing the SAS/SATA Backplane

**NOTE:** The procedures for replacing SAS/SATA backplanes are the same.

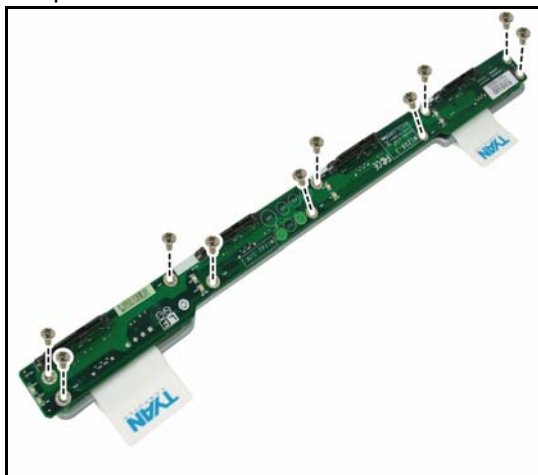
1. Remove the 3 screws securing the adapter board to the chassis.



2. Grab the two labels to lift the adapter board.



3. Remove the ten screws that secure the bracket to the adapter board.

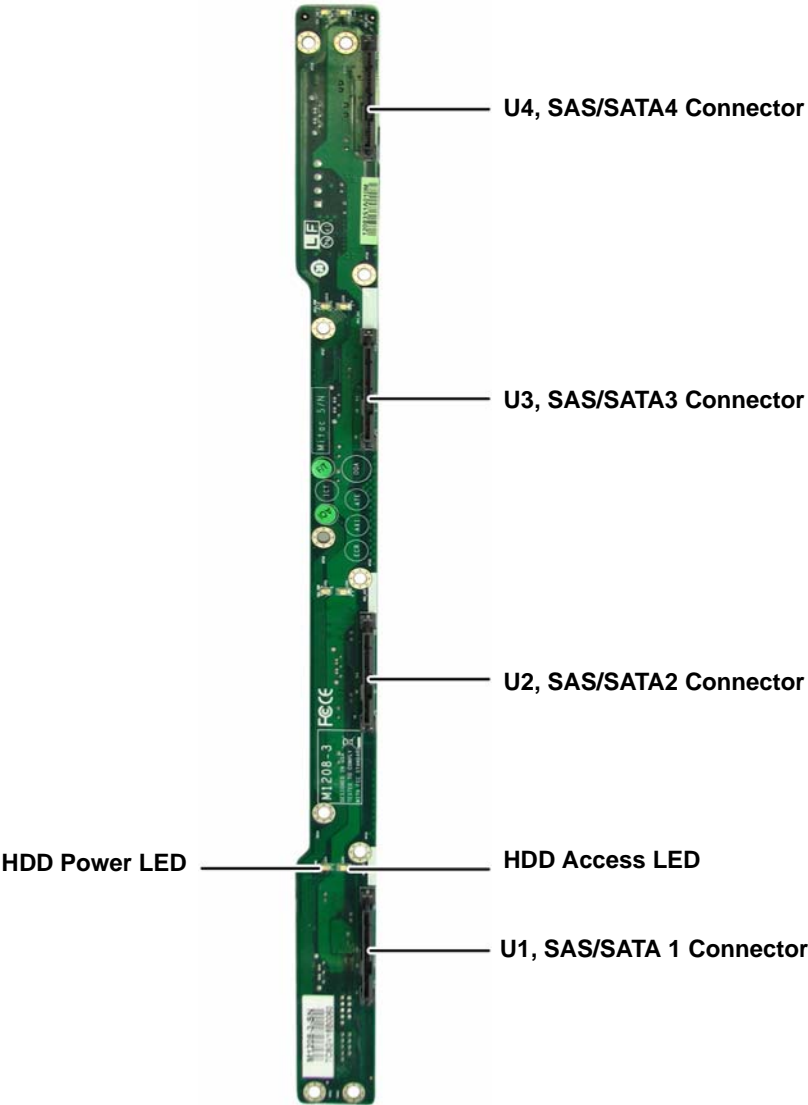


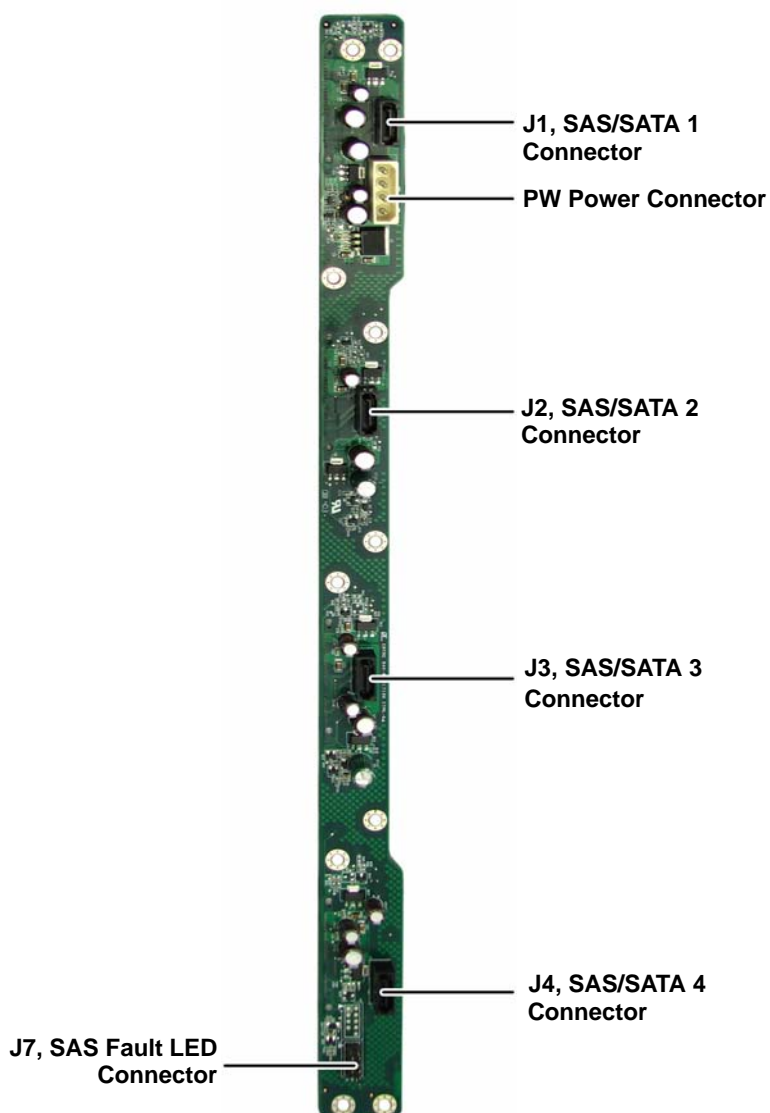
4. Release the adapter board free from the bracket.



5. Replace the unit to the chassis following the reverse procedures from step 1 to 4 when done.

3.8.1 SAS/SATA Backplane (M1208-3-SN) Features





### 3.9 Replacing the Power Supply (B5397G24V4H / B5397G24W4H)

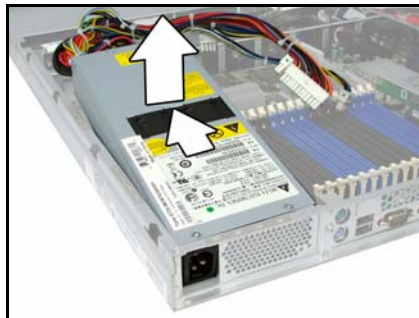
1. Remove the two screws that secure the power supply to the chassis.



2. Remove the screw that secure the power supply to the chassis



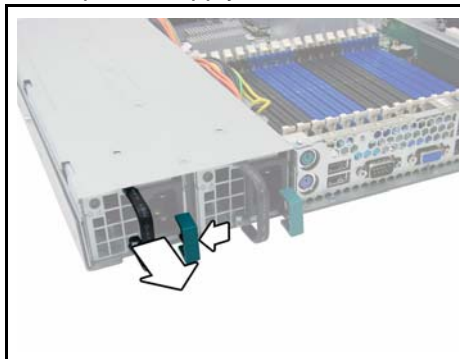
3. Lift the power supply free from the chassis.



4. Place a new power supply in position in the chassis and secure in place with the three screws.

### 3.10 Replacing the Power Supply (B5397G24W4HR)

1. Push the power supply unit latch inwards.

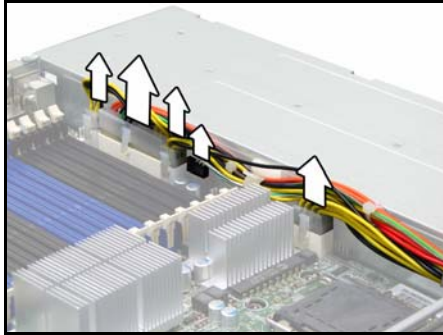


2. Pull out the power supply unit as shown.



### 3.11 Replacing the PDB Board M1032

1. Disconnect the five ATX power connectors from the motherboard. .



2. Remove the one power connectors from the backplane and one from the Adapter board as shown.



3. Remove the five screws securing the power board to the chassis. Then lift off the power board free from the chassis



# Appendix I: BIOS Differences

The BIOS of B5397 is similar to the BIOS of S5397. Only one menu is different. You may refer to the attached motherboard manual for the complete BIOS information. The differences between B5397 and S5397 are on the “Advanced/Hardware Health Information” menu. See the following for the differences.

## S5397 Advanced/Hardware Health Information

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
FAN Speed Monitoring			Item Specific Help		
CPU0 FAN		N/A RPM	All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.		
CPU1 FAN		N/A			
Rear Chasis FAN		N/A			
Front Chasis FAN		N/A			
PCI FAN		N/A			
System FAN		N/A			
F1 Help	↑ ↓ Select Item	-/+ Change Values	F9 Setup Defaults		
Esc Exit	← → Select Menu	Enter Select	► Sub-Menu	F10 Previous Values	

## B5397 Advanced/Hardware Health Information

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
FAN Speed Monitoring			Item Specific Help		
System FAN1		XXXXX RPM	All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.		
System FAN2		XXXXX RPM			
System FAN3		XXXXX RPM			
System FAN4		XXXXX RPM			
System FAN5		XXXXX RPM			
System FAN6		XXXXX RPM			
System FAN7		XXXXX RPM			
System FAN8		XXXXX RPM			
System FAN9		XXXXX RPM			
F1 Help	↑ ↓ Select Item	-/+ Change Values	F9 Setup Defaults		
Esc Exit	← → Select Menu	Enter Select	► Sub-Menu F10 Previous Values		

**Table of Differences**

	<b>S5397</b>	<b>B5397</b>
FAN Fail LED Indicator	Disabled	Enabled
Auto Fan Control	Disabled	Enabled
Hardware Monitor Fan	CPU0 FAN CPU1 FAN Rear Chassis FAN Front Chassis Fan PCI FAN System FAN	System FAN1 Speed System FAN2 Speed System FAN3 Speed System FAN4 Speed System FAN5 Speed System FAN6 Speed System FAN7 Speed System FAN8 Speed System FAN9 Speed

Notice: Please install AHCI driver before installing OS with B5397G24V4H so that the operating system can be installed properly.

# Appendix II: Cable Connection Tables

## SATA/SAS Cable

Table 1: B5397G24W4H/B5397G24W4HR

M1208-3-SN SATA/SAS Backplane	Connect to	Motherboard
J5 SATA/SAS 1	→	SAS0-3
J3 SATA/SAS 2	→	
J2 SATA/SAS 3	→	
J1 SATA/SAS 4	→	

Table 2: B5397G24V4H

M1208-3-SN SATA/SAS Backplane	Connect to	Motherboard
J5 SATA/SAS 1	→	SATA1
J3 SATA/SAS 2	→	SATA2
J2 SATA/SAS 3	→	SATA3
J1 SATA/SAS 4	→	SATA4

## FAN Cable

Table 3: System Fan to M1012 Adapter Board

System Fan	Connect to	M1012
Fan 1 / Fan 5	→	J6 Fan Connector
Fan 2 / Fan 6	→	J10 Fan Connector
Fan 3 / Fan 7	→	J11 Fan Connector
Fan 4 / Fan 8	→	J9 Fan Connector
Fan 9	→	J5 Fan Connector

**Table 4: M1012 Adapter Board to Motherboard**

M1012	Connect to	Motherboard
J14 Fan connector	→	J33 Fan connector

## Power Supply Cable

**Table 5: Power Supply /Power board M1032 to Motherboard**

Power Supply / Power board M1032	Connect to	Motherboard
P1 24-pin power cable	→	PW2 24-pin powerconnector
P2 8-pin power cable	→	PW4 8-pin power connector
P3 4-pin power cable	→	PW1 4-pin power connector
P7 4-pin power cable	→	PW3 4-pin power connector

**Table 6: Power Supply / Power board M1032 to M1012 Adapter Board**

Power Supply / Power board M1032	Connect to	M1012
P4 4-pin power cable	→	PW2 4-pin power connector

**Table 7: Power supply / Power board M1032 to  
M1208-3-SN HDD Backplan**

Power Supply / Power board M1032	Connect to	M1208-3-SN
P5 4-pin cabler	→	PW2 4-pin power connector

**Table 8: Power board M1032 to Motherboard**

Power board M1032	Connect to	Motherboard
PSMI1 5-pin cable	→	J18 5-pin PSMI connector

## The other cable

**Table 9: M1012 Adapter Board to Motherboard**

M1012	Connect to	Motherboard
J1 Front panel connector	→	J28 (TYFP 1)
J3 LAN / ID LED connector	→	J37 (TYFP 2)

**Table 10: M1003 Front Panel Control Board Related Cabled**

M1003	Connect to	
J1 USB connector	→	Motherboard J41
J2 connector	→	M1012 J2 connector

**Table 11: SATA DVD-ROM Related Cable**

SATA DVD-ROM	Connect to	
SATA data cable	→	Motherboard SATA0
SATA power cable	→	M1012 J19 connector

## Appendix III: Installing an SMDC Card

This section provides information on installing optional M3295-2/ M3296 SMDC cards to your motherboard.

**M3295-2**

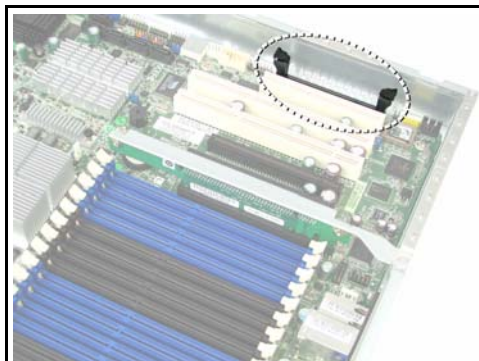


**M3296**



Follow these instructions to install an SMDC card for TANK GT24-B5397.

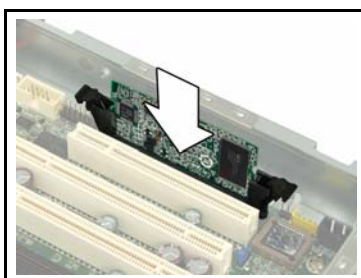
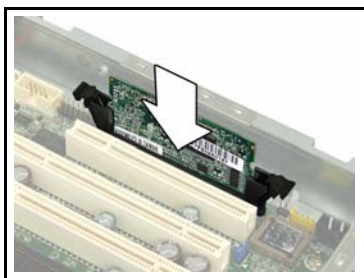
1. Locate the SO-DIMM connector on the motherboard.



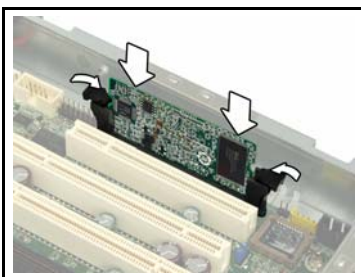
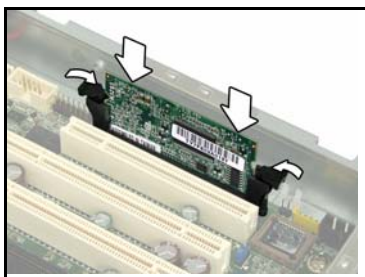
2. Press the SO-DIMM connector locking levers in the direction of the arrows as shown.



3. Insert the M3295-2/M3296 SMD C card into the connector as shown.



4. When inserted properly, the SO-DIMM connector locking levers lock automatically onto the indentations at the end of the SMD C card.



## **Technical Support**

If problems arise with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help. Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website ([www.tyan.com](http://www.tyan.com)) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at [tech-support@tyan.com](mailto:tech-support@tyan.com)

### **Help Resources:**

1. See the beep codes section of this manual.
2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: <http://www.tyan.com>

3. Contact your dealer for help BEFORE calling TYAN.
4. Check the TYAN user group: alt.comp.periphs.main-board.TYAN

### **Returning Merchandise for Service**

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

**NOTE:** A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid. TYAN will pay to have the board shipped back to you.

TANK GT24, B5397 Service Engineer's Manual v1.0  
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